

### **Remarks**

The final Office Action mailed August 19, 2008 has been reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-19 are now pending in this application. Claims 1-19 stand rejected.

The rejection of Claims 1-8 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter is respectfully traversed.

Applicant submits that the claims of the present patent application are directed to practical applications in the technological arts. "Any sequence of operational steps can constitute a process within the meaning of the Patent Act so long as it is part of the technological arts." *In re Musgrave*, 431 F.2d 882 (CCPA 1970).

Nonetheless, in order to expedite prosecution, Applicant has amended independent Claim 1 to recite ". . . displaying on an ultrasonic image display device said reference image and said real-time image side by side." Accordingly, Applicant submits that Claim 1, as amended, satisfies the requirements of 35 U.S.C. § 101.

For at least the reasons set forth above, Applicant respectfully requests that the Section 101 rejection of Claims 1-8 be withdrawn.

The rejection of Claims 1, 6-9, and 16-19 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,938,607 to Jago et al. (hereinafter referred to as "Jago") is respectfully traversed.

Jago describes an ultrasonic diagnostic imaging system provided to aid in the diagnosis of patient conditions by providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis. The ultrasound system (10) includes a scanhead (14) and transducer (12) which transmit ultrasonic waves into the subject. A beamformer (16) and a signal processor (64) process the echo data. Then a display processor (68) forms the echo data into an image which can be stored in the storage medium (24) and/or displayed on a display (70). A browser (120) is included to allow the operator

to retrieve prior scan settings and then set the ultrasound to use the retrieved scan settings.

Claim 1 recites an ultrasonic imaging method including “storing a reference image and a scan condition used to acquire the reference image; reading said reference image and said scan condition; acquiring a real-time image by automatically setting said scan condition, wherein said reference image is acquired from a subject before providing medical treatment to the subject and said real-time image is acquired after providing medical treatment to the subject; and displaying on an ultrasonic image display device said reference image and said real-time image side by side.”

Jago does not describe or suggest an ultrasonic imaging method as recited in Claim 1. More specifically, Jago does not describe or suggest storing a reference image and a scan condition used to acquire the reference image, acquiring the reference image from a subject before providing medical treatment to the subject, and acquiring the real-time image after providing medical treatment to the subject. Rather, in contrast to the present invention, Jago describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis. In contrast to Applicant’s claimed invention, the reference images in the library are not acquired from the subject before providing medical treatment. Further, Jago does not describe or suggest automatically setting the scan condition. Rather, in contrast to the present invention, Jago describes receiving system preset data, storing the preset data as custom preset data, and then having the operator manipulate the user controls to select the custom preset data. See column 70, lines 25-40. Requiring an operator to manually select preset data is not that same as a method that automatically sets a preset scan condition.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted as patentable over Jago.

Claims 6-8 depend from independent Claim 1. When the recitations of Claims 6-8 are considered in combination with the recitations of Claim 1, Applicant submits that Claims 6-8 are likewise patentable over Jago.

Claim 9 recites an ultrasonic diagnostic apparatus including “an ultrasonic probe; a transmitting/receiving device for driving said ultrasonic probe to transmit ultrasonic pulses into a subject and receive ultrasonic echoes from inside the subject and outputting received data; an ultrasonic image producing device for producing an ultrasonic reference image from the resulting received data, wherein said ultrasonic image producing device is configured to produce a real-time image; a reference image storage device for storing said reference image; a scan condition storage device for storing a scan condition for said reference image; an automatic scan condition setting device for reading said scan condition and setting said scan condition, wherein said reference and real-time images are acquired by setting said scan condition, and wherein said reference image is acquired from the subject before a medical treatment of the subject and said real-time image is acquired after the medical treatment; and an ultrasonic image display device for reading said reference image and displaying said reference image and said real-time image side by side.”

Jago does not describe or suggest an ultrasonic diagnostic apparatus as recited in Claim 9. More specifically, Jago does not describe or suggest that the reference image is acquired from the subject before medical treatment of the subject and the real-time image is acquired after the medical treatment. Rather, in contrast to the present invention, Jago describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis. In contrast to Applicant’s claimed invention, the reference images in the library are not acquired from the subject before providing medical treatment. Further, Jago does not describe or suggest an automatic scan condition setting device. Rather, in contrast to the present invention, Jago describes receiving system preset data, storing the preset data as custom preset data, and then having the operator manipulate the user controls to select the custom preset data. See column 70, lines 25-40. Requiring an operator to manually select preset data is not that same as a method that automatically sets a preset scan condition.

Accordingly, for at least the reasons set forth above, Claim 9 is submitted as patentable over Jago.

Claims 16-19 depend from independent Claim 9. When the recitations of Claims 16-19 are considered in combination with the recitations of Claim 9, Applicant submits that Claims 16-19 are likewise patentable over Jago.

For at least the reasons set forth above, Applicant respectfully requests that the Section 102 rejection of Claims 1, 6-9 and 16-19 be withdrawn.

The rejection of Claims 2-5 and 10-15 under 35 U.S.C. § 103(b) as being unpatentable over Jago in view of U.S. Patent Application Publication No. 2002/0120195 to Hossack et al. (hereinafter referred to as “Hossack”) is respectfully traversed.

Jago is described above.

Hossack describes a method for combining multiple images to create a single image with a wider field of view. The method includes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image with a wider field of view. Notably, in contrast to Applicant’s claimed invention, the images described in Hossack are acquired at approximately the same time rather than obtaining the reference image from the subject before providing medical treatment and obtaining the real-time image after providing medical treatment to the subject.

Claims 2-5 depend from Claim 1, which recites an ultrasonic imaging method including “storing a reference image and a scan condition used to acquire the reference image; reading said reference image and said scan condition; acquiring a real-time image by automatically setting said scan condition, wherein said reference image is acquired from a subject before providing medical treatment to the subject and said real-time image is acquired after providing medical treatment to the subject; and displaying on an ultrasonic image display device said reference image and said real-time image side by side.”

Neither Jago nor Hossack, considered alone or in combination, describes or suggests an ultrasonic imaging method as recited in Claim 1. More specifically, neither Jago nor Hossack, considered alone or in combination, describes or suggests

storing a reference image and a scan condition used to acquire the reference image, acquiring a reference image from a subject before providing medical treatment to the subject, and acquiring a real-time image after providing medical treatment to the subject. Rather, in contrast to the present invention, Jago describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis. In contrast to Applicant's claimed invention, the reference images in the library are not acquired from the subject before providing medical treatment. Further, Jago does not describe or suggest automatically setting the scan condition. Rather, in contrast to the present invention, Jago describes receiving system preset data, storing the preset data as custom preset data, and then having the operator manipulate the user controls to select the custom preset data. See column 70, lines 25-40. Requiring an operator to manually select preset data is not that same as a method that automatically sets a preset scan condition.

Hossack does not overcome the deficiencies of Jago. Hossack describes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image with a wider field of view. Notably, in contrast to Applicant's claimed invention, the images describe in Hossack are acquired at approximately the same time rather than obtaining the reference image from the subject before providing medical treatment and obtaining the real-time image after providing medical treatment to the subject. Further, Hossack does not describe or suggest automatically setting the scan condition.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Jago in view of Hossack.

Claims 2-5 depend from independent Claim 1. When the recitations of Claims 2-5 are considered in combination with the recitations of Claim 1, Applicant submits that Claims 2-5 are likewise patentable over Jago in view of Hossack.

Claim 10 depends from Claim 9, which recites an ultrasonic diagnostic apparatus including "an ultrasonic probe; a transmitting/receiving device for driving

said ultrasonic probe to transmit ultrasonic pulses into a subject and receive ultrasonic echoes from inside the subject and outputting received data; an ultrasonic image producing device for producing an ultrasonic reference image from the resulting received data, wherein said ultrasonic image producing device is configured to produce a real-time image; a reference image storage device for storing said reference image; a scan condition storage device for storing a scan condition for said reference image; an automatic scan condition setting device for reading said scan condition and setting said scan condition, wherein said reference and real-time images are acquired by setting said scan condition, and wherein said reference image is acquired from the subject before a medical treatment of the subject and said real-time image is acquired after the medical treatment; and an ultrasonic image display device for reading said reference image and displaying said reference image and said real-time image side by side.”

Neither Jago nor Hossack, considered alone or in combination, describes or suggests an ultrasonic diagnostic apparatus as recited in Claim 9. More specifically, neither Jago nor Hossack, considered alone or in combination, describes or suggests that the reference image is acquired before a medical treatment of the subject and the real time image is acquired after the treatment. Rather, in contrast to the present invention, Jago describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis. In contrast to Applicant’s claimed invention, the reference images in the library are not acquired from the subject before providing medical treatment. Further, Jago does not describe or suggest an automatic scan condition setting device. Rather, in contrast to the present invention, Jago describes receiving system preset data, storing the preset data as custom preset data, and then having the operator manipulate the user controls to select the custom preset data. See column 70, lines 25-40. Requiring an operator to manually select preset data is not that same as a method that automatically sets a preset scan condition.

Hossack does not overcome the deficiencies of Jago. Hossack describes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image

with a wider field of view. Notably, in contrast to Applicant's claimed invention, the images describe in Hossack are acquired at approximately the same time rather than obtaining the reference image from the subject before providing medical treatment and obtaining the real-time image after providing medical treatment to the subject. Further, Hossack does not describe or suggest an automatic scan condition setting device.

Accordingly, for at least the reasons set forth above, Claim 9 is submitted to be patentable over Hossack.

Claim 10 depends from independent Claim 9. When the recitations of Claim 10 are considered in combination with the recitations of Claim 9, Applicant submits that Claim 10 is patentable over Jago in view of Hossack.

Claims 11 recites an ultrasonic diagnostic apparatus including "an ultrasonic probe; a transmitting/receiving device for driving said ultrasonic probe to transmit ultrasonic pulses into a subject and receive ultrasonic echoes from inside the subject and outputting received data; an ultrasonic image producing device for producing an ultrasonic reference image from the received data; a reference image storage device for storing said reference image; a scan condition storage device for storing a scan condition for said reference image; an automatic scan condition setting device for reading said scan condition and setting said scan condition; a scan plane angular scanning device for acquiring a plurality of real-time images at different scan plane angles, wherein said reference image is acquired from the subject before providing medical treatment to the subject and one of said real-time images is acquired after providing the medical treatment; a correlation coefficient calculating device for calculating a correlation coefficient between said reference image and each of said real-time images throughout or partially; and an ultrasonic image display device for displaying said reference image and one of said real-time images having a highest correlation coefficient side by side."

Neither Jago nor Hossack, considered alone or in combination, describes or suggests an ultrasonic diagnostic apparatus as recited in Claim 11. More specifically, neither Jago nor Hossack, considered alone or in combination, describes or suggests that the reference image is acquired before a medical treatment of the subject and the

real time image is acquired after the treatment. Rather, in contrast to the present invention, Jago describes providing access from an ultrasound system to a library of reference ultrasonic images which may be displayed alongside real-time patient images for diagnosis. In contrast to Applicant's claimed invention, the reference images in the library are not acquired from the subject before providing medical treatment. Further, Jago does not describe or suggest an automatic scan condition setting device. Rather, in contrast to the present invention, Jago describes receiving system preset data, storing the preset data as custom preset data, and then having the operator manipulate the user controls to select the custom preset data. See column 70, lines 25-40. Requiring an operator to manually select preset data is not that same as a method that automatically sets a preset scan condition.

Hossack does not overcome the deficiencies of Jago. Hossack describes acquiring at least two images, selecting test blocks from both images, determining a translation value, using the translation value to determine a rotation value, and then applying the translation and rotation values to merge the images into a single image with a wider field of view. Notably, in contrast to Applicant's claimed invention, the images describe in Hossack are acquired at approximately the same time rather than obtaining the reference image from the subject before providing medical treatment and obtaining the real-time image after providing medical treatment to the subject. Further, Hossack does not mention or suggest an automatic scan condition setting device.

Accordingly, for at least the reasons set forth above, Claim 11 is submitted to be patentable over Hossack.


Claims 12-15 depend from independent Claim 11. When the recitations of Claims 12-15 are considered in combination with the recitations of Claim 11, Applicant submits that dependent Claims 12-15 likewise are patentable over Jago in view of Hossack.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 2-5 and 10-15 be withdrawn.



In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,

  
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